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ABSTRACT

Perspectives on the improvement of college instruction are offered. External forces that focus attention on the quality of college instruction are identified, including: the demand for good teaching by two groups of nontraditional students (low-performing students and adult students); technology, and especially new interactive technologies; the growing interest in assessment and program evaluation; the new emphasis on alterable variables in educational research; the lack of mobility for faculty members; and low morale among the teaching faculty. While the classroom lecture method is the method of choice for college teachers, one promising method for better learning of subject-matter content has been the Personalized System of Instruction, which emphasizes student involvement, high expectations, and assessment and feedback. Problems arise when colleges that are primarily teaching institutions turn to faculty publication as their route to distinction. For undergraduate education to improve, teachers will need support of their colleges, including the commitment to evaluate teaching performance in decisions to hire, promote, and tenure faculty members. It is recommended that research on teaching and learning should be done in classrooms across the nation by classroom teachers ("classroom researchers.") (SW)

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A PROPOSAL TO IMPROVE TEACHING

— or —

WHAT "TAKING TEACHING SERIOUSLY" SHOULD MEAN

by K. Patricia Cross

If Sleeping Beauty had dozed off in class at the University of Bologna in the 12th Century and been awakened recently by all of the noise about educational excellence, she would have awakened to a classroom that was quite familiar to her. Generations of students and teachers have come and gone; the printing press has made knowledge easily available to the masses; television producers have learned to disdain the "talking head;" computers offer new opportunities for interactive learning; but the talking head continues to reign supreme in higher education.

So far, "teaching as telling" has withstood the test of time. But the times they are a changing—or are they?

Collegiate education has been bombarded recently with reform reports and threats of legislation to improve the quality of undergraduate education. Their message is clear: good teaching is on the agenda in the 1980's call for excellence in education.

True, it has been on the agenda before. One hundred fifty years ago, the Yale report faulted colleges for failing to bring the "minds of instructors to act directly and vigorously on the minds of pupils...." (Quoted in Levine, 1986). Is there any reason to think that today's campaign will make any real or lasting difference in college teaching?

My answer is a cautious, "Maybe" —not so much because we in higher education mean business this time around, as because external forces are coalescing to demand more attention to the quality of instruction.

In the first place, students have always been a major force for change in higher education, but never any more so than in today's buyer's market. We now have two groups of so-called nontraditional students dominating higher education enrollments for whom good teaching is especially important. First is the group of low-performing students who need good teaching if the access revolution is to have meaning. Second are the adults who are likely to demand good teaching if they are to give time and money to the task of learning.

It is not mere happenstance that some of the most interesting teaching is taking place in the community colleges where the work of teaching is most difficult and where these particular student pressures for change are greatest. It is noteworthy that the new Carnegie survey shows 85% of community college students satisfied with teaching at their college, compared to only 68% of the students in research universities *(Chronicle of Higher Education, February 5, 1986)*.

A second external force for change is technology. To be sure, technology has been touted before as a competitor of live professors, but the technology of the past em-

phasized "teaching as telling." It remains to be seen whether the new interactive technologies, which conform more closely to what we think is required for good learning, will demonstrate their value.

Third is the growing interest in assessment and program evaluation. Student learning is a mission of every institution that teaches undergraduates. And it is quite fair to ask how well we do that job. For better or for worse—and much of it is "for the worse"—assessment is here, and everyone wants to know what students are learning in college. A concerted attack on the measurement of student learning will enable us to provide more adequate feedback to teachers, departments, and institutions. Ultimately, the most sophisticated forms of assessment will be built into instruction and curriculum, providing continuous feedback on the processes of teaching and learning.

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This paper was originally titled Taking Teaching Seriously *and was first presented to a standing-room-only crowd at the 1986 National Conference on Higher Education in Washington, DC. Permission to reprint or quote is restricted.*

It is estimated that teachers in the average classroom spend about 80% of their time lecturing to students who, in turn, attend to what is being said only about half the time.

Fourth is the new emphasis on alterable variables in educational research. In the past, studies focused on characteristics of teachers and students, on the qualities they bring into the classroom, on what Ben Bloom calls static or unalterable variables since there is little we can do as educators to change them. "This shift [to alterable variables] enables researchers to move from an emphasis on prediction and classification to a concern for causality and the relationship between means and ends in teaching and learning" (Bloom, 1980).

Fifth is the current lack of mobility for faculty members. The necessity for faculty members to "make it" in their own institutions and for institutions to concern themselves with the long-term development of teachers places more emphasis on local reputations as good teachers and contributors to the college.

Finally, the major work force of higher education—the teaching faculty—are "at risk" and "deeply troubled" (*Change*, September/October, 1985). I interpret low faculty morale as a call for academic leadership that will restore the quality of curriculum and instruction to their rightful place as the first priority of educational leaders. For some years now, educational administrators have been giving their attention to management issues. Amidst widespread concern for fiscal solvency, educational solvency has been allowed to drift. Clark Kerr (1984) concluded his study of the college presidency with the observation that trustees and faculty alike want stronger educational leadership from their presidents.

For all these reasons, it seems likely that we are about to take college teaching seriously. What would that mean?

First and foremost it would mean defining and identifying good teaching. Right now, we tend to define good teaching as that which results in good learning, and the most common way we measure student learning is by scores on academic achievement tests.

Does excellence in education mean high scores on achievement tests that measure mastery of subject matter? Yes, but only in part. In this era of the knowledge explosion, what students know when they leave college will not be nearly as important as what they are capable of learning. Nevertheless, most teachers sincerely believe that knowledge of the subject matter they work so hard to teach is important. Clearly, legislators and the public think it is important. What then do we know about how to teach for that admittedly important, but incomplete, goal of a college education?

Lecturing to students has long been decried, yet it is the overwhelming method of choice for college teachers. It is estimated that teachers in the average classroom spend about 80% of their time lecturing to students, who, in turn, attend to what is being said only about half the time (Pollio, 1984). We know, too, that the curve for forgetting course content is fairly steep: a generous estimate is that students forget 50% of the content within a few months (Brethower, 1977). A more devastating finding comes from a study that concluded that even under the most favorable conditions, "students carry away in their heads and in their notebooks not more than 42% of the lecture content" (McLeisch, 1968). Those were the results when students were told that they would be tested immediately following the lecture; they were permitted to use their notes; and they were given a prepared summary of the lecture.

These results were bad enough, but when students were tested a week later, without the use of their notes, they could recall only 17% of the lecture material.

There must be a better way. And there is.

Research on mastery learning and its various offshoots is showing very positive results when the goal is the mastery of course content. Ben Bloom and his colleagues at the University of Chicago, after years of study, report most recently that the average mastery learning student out-performs 84% of the students in control classes (Bloom, 1984).

Most promising, too, are the research findings on PSI (Personalized System of Instruction), introduced in this country twenty-two years ago by psychologist Fred Keller (1968). The strength of PSI lies in its ability to incorporate into its pedagogy the three "critical conditions of excellence" identified in the NIE Study Group report (*Involvement in Learning*, 1984).

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Those conditions are: 1) student involvement; 2) high expectations; and 3) assessment and feedback. In PSI, the expectations are that students will meet pre-determined standards of 80% mastery, that they will be given immediate feedback through frequent testing, and that they must be involved to the extent of spending the necessary amounts of energy and time on the learning task.

In comprehensive review of the substantial research on PSI, James Kulik (1982) of the University of Michigan concluded that the average study showed that PSI was "remarkably effective." More than 80% of the studies found PSI significantly better than control classes in student achievement. When Kulik and his colleagues (1979) did a meta-analysis of seventy-five of the best studies, they found that PSI boosted average student achievement on final exams from the 50th to the 70th percentile.

The needs of the 21st century are for broadly educated people who can and will use their minds to invent new products or procedures and who can interpret trends or analyze problems.

The following findings are equally persuasive:

1. PSI's superiority over control classes is especially clear in studies calling for integrative responses on final exams; there is less difference on exams calling for simple recall of information.
2. Achievement effects are clearest in studies using delayed measures of learning (i.e., exams weeks or months after completion of the course).
3. PSI is equally effective for high- and low-aptitude students.
4. Students consistently give PSI higher ratings.

There are other methods of teaching that appear equally promising, but none, I think, with quite the extensive evaluation that has been done on PSI.

I contend, then, that we know quite a bit about how to improve teaching for better learning of subject-matter content. But, I also contend that anyone pursuing excellence in teaching needs to think beyond the mastery of subject matter. As Alfred North Whitehead remarked, "A merely well-informed man is the most useless bore on God's earth" (1929).

There is wide agreement that colleges aspire to more than stuffing minds with subject matter. Howard Bowen's (1977) extensive review of the literature on collegiate goals concluded that the single most consistent theme of the literature is that, "Education should be directed toward the growth of the whole person through the cultivation not only of the intellect and of practical competence, but also of the affective dispositions, including the moral, religious, emotional, social, and esthetic aspects of the personality" (p.33). That widely-accepted goal is what makes the assessment of higher education so difficult.

Even if we confined our discussion to cognitive goals, we would have to recognize that the needs of the 21st Century are for broadly educated people who can and will use their minds to invent new products or procedures and who can interpret trends or analyze problems. As Rosabeth Kanter (1983) says, "Idea power is the most important economic stimulus of all."

Employers, states, and the nation want an educational system that will produce people who have "idea power." Ideas are far more important to our world than information—which has become both plentiful and cheap. "Running out of information is not a problem," says John Naisbitt, "but drowning in it is." (1982)

There is some danger that students in our classrooms are drowning in information now. Many of their bone-weary teachers teach as they were taught. There is nothing in their preparation and training to break the cycle of teaching as telling. All too often, information flows from the notes of the professor into the notebooks of students without passing through the minds of either.

The research shows that most teachers regard themselves as information disseminators (Axelrod, 1976; Richardson, et al. 1983). The response of many faculty members to the perceived poor quality of today's students is to reduce cognitive demands to the low-level skills of recall and comprehension, and to

give up requiring students to develop the higher-level skills of analysis, synthesis, and evaluation. Instructors and students often "buy into" classes with these low-level cognitive demands; among the reasons are: 1) the socialization of students in prior schooling to absorb information; 2) growing demands on teachers for concrete evidence of student "learning;" 3) faculty time pressures that favor straightforward oral or written presentation and simple forms of student evaluation; 4) the increasing identification of college teachers with narrow disciplinary specialties, rather than with the broader community of educated persons, and 5) the tendency of the academic establishment itself to send confused messages about what constitutes academic excellence.

Increasingly, colleges seeking academic distinction do so through recruiting and rewarding faculty researchers. In the prestige hierarchy of higher education, teaching is considered a second-class activity; to be labeled a "teaching institution" is to be damned with faint praise. While the "teacher" struggles with mundane student minds, the "researcher" is presumed to be responding to a higher calling to contribute to the world's knowledge.

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The paradox faced by the academic community is that, as *individuals*, the great majority of faculty members—70% according to the recent Carnegie Study—say their primary satisfactions and interests lie more in teaching than in research. It is in the *collective* culture of academe that research achieves its high status. In their recent study of faculty, Jack Schuster and Howard Bowen (1985) express concern about the "research surge" now taking place in institutions where research has not been a priority mission in the past. "We doubt," they write, "that the stampede toward publishable research and scholarship, or what sometimes passes as scholarship, serves the nation's needs, or the longer-term interests of those campuses historically committed to effective teaching."

Despite today's pressures for publication, 70% of all faculty members in the Carnegie survey say they are not currently doing any research that they expect will lead to publication. No wonder our faculties are demoralized. The teacher-scholar was pushed off stage by the research scientist in the 1960s, and the results, whatever they may have done for advancement of knowledge, have not been salutary for undergraduate education. There is a serious problem when colleges whose mission and support derives from teaching and student development turn to faculty publication as their route to distinction.

One result of this turn is that dedicated teachers no longer feel valued by their institutions. For undergraduate education to improve, teachers will need the whole-hearted support of their institutions, starting with a commitment to evaluate teaching performance in decisions to hire, promote, and tenure faculty members. We cannot continue to hide behind the excuse that we cannot reward good teaching because we can't tell a good teacher from a poor one. That sentiment defies our common experience and is contrary to most research on the question.

We cannot continue to hide behind the excuse that we cannot reward good teaching because we can't tell a good teacher from a poor one.

There are many styles of effective teaching, but good teachers have common, identifiable characteristics. Although most college teachers now accept the usefulness of student evaluations, and two-thirds of the faculty in the Carnegie survey agree that "teaching effectiveness, not publication, should be the primary criterion for faculty promotion," there remain many myths and misunderstandings about student ratings, the most common form of teacher evaluation. There is now, however, reasonably consistent agreement in the research for the following assertions:

1) There is general agreement among students, and between students and faculty, on the effectiveness of teachers.
2) The judgments students make about their teachers persist and are replicated years after they graduate.
3) Student ratings are relatively independent of the student characteristics commonly thought of as sources of bias, such as grade point average, actual or expected grade in course, and class level.
4) Student ratings are positively correlated with the amount of student learning. (Gaff & Wilson, 1971)

While these findings do not mean that the evaluation of teaching should be based solely on student ratings, they do suggest there is little basis for the myths surrounding student evaluations (Eble, 1976). There is no evidence for the myths that popular teachers are mere showmen, that the mature perspective of alumni will find virtues in the professors not reported ten years earlier, or that there is lack of agreement on what constitutes effective teaching.

I can find no legitimate reason for not increasing institutional recognition of good teaching. In the Carnegie survey, more than 90% of

the students in every kind of institution, from community colleges to research universities, believe that "teaching effectiveness, not publication, should be the primary criterion for faculty promotion," and a majority of faculty everywhere except in the research universities agree.

We've heard much lately from gubernatorial task forces about states interests in the improvement of undergraduate teaching and learning. But states that are genuinely interested in the quality of teaching will need to give more attention to its support. Ironically, part of the problem lies in the fact that teaching has a stable, predictable source of funding, while research funding is unstable and competitive. In times of scarce resources, research grants become even more attractive than usual because they provide discretionary funds for both colleges and faculty members. As travel funds and clerical help are cut back in state and institutional budgets, faculty gain access to the good life in academe by securing research grants that will provide discretionary dollars. Not surprisingly, colleges hard-pressed for funds encourage and reward those who bring in additional money.

Teaching, in contrast, has a stable base of funding. Teachers are paid and students receive academic credit whether learning takes place or not. Thus there is no incentive for either teachers or colleges to expend their energies on teaching.

The State of Tennessee has one possible answer to this dilemma in the form of performance-based funding. Colleges can supplement their core budget by demonstrating progress toward specified measures of student learning. That approach has the advantage of getting departments to work together toward common goals, and the superior teacher becomes a considerable asset to the department. Many departments already provide modest funding for course development, but they might also consider incentives such as making travel funds

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available to outstanding teachers or to faculty attending conferences on teaching.

Being a teacher is a challenging intellectual task. Done right, it demands knowledge about human learning; it requires an evaluation of student responses that is every bit as exacting as a physician's evaluation of patient responses to treatment. Unfortunately, teaching has not been perceived as intellectually challenging because we practice it at such a primitive level. But if college teachers were to practice their profession at a more sophisticated level, they would discover that the classroom is, or should be, a challenging research laboratory, with questions to be pursued, data to be collected, analyses to be made, and improvements to be tried and evaluated.

Donald Schön, in his provocative book, *The Reflective Practitioner* (1983), argues that research in professions such as law, management, and education has proved of little value to practitioners. He contends that, "Teachers have gained relatively little from cognitive psychology," and it is hard to disagree. The questions driving the research seem not to be the questions needed for practice, and efforts to connect the two have not been successful. Schön suggests that practitioners who thoughtfully *reflect* on what they are doing will get us further along the road to improvement than will discipline-based research.

Schön's work gives me the basis for the proposal for action that I am about to make. I believe that research on teaching and learning should be done in *thousands* of classrooms across this nation by classroom teachers themselves. What is needed, if higher education is to move toward our goal of maximum student learning, is a new breed of college teacher that I shall call a Classroom Researcher. Classroom researchers should be the special hallmark of "teaching institutions," i.e., community colleges, state colleges, and most liberal arts colleges.

Teaching...demands knowledge about human learning; it requires an evaluation of student responses that is every bit as exacting as a physician's evaluation of patient responses to treatment.

My proposal offers a number of advantages:

First, there is good reason to think that while good teachers have certain characteristics in common—knowledge of their subject and enthusiasm for teaching it, for example—good teaching may not be the same in ethics as in physics. One of the reasons for the success of PSI, I think, is that it has been the province of classroom teachers from the beginning. Its methods are especially appropriate for teaching introductory psychology, and psychologists have had the research skills to evaluate and improve it in their own classrooms. One of the most troublesome bottlenecks to the implementation of research findings has always been the translation of research into practice. If researchers and practitioners were one, the likelihood of implementation would be greatly improved, while fascination with fads would be reduced by the necessity for continuous evaluation by teachers themselves.

What is needed, if higher education is to move toward our goal of maximum student learning, is a new breed of college teacher that I shall call a Classroom Researcher.

Moreover, if the demoralization of the faculty is due to a lack of professional identity and shared values, as is claimed, then the model of Classroom Researchers has much to offer to departmental morale and cohesion. The department becomes the focal point for research on the teaching of its discipline; its faculty meetings might well become seminars for the improvement of teaching. While some of the discoveries about improved teaching methods may warrant nationwide dissemination, there is merit in providing teachers with a strictly local platform for campus recognition of their work on teaching.

The involvement of teachers in searching for new knowledge about teaching effectiveness also begins to build a foundation for improved evaluation of teaching, an essential ingredient in rewarding teaching in promotion and tenure decisions.

Finally, and perhaps most important, as teachers study the learning situation, their actions, and student responses, they will almost certainly learn more about learning as a process and about improving their own teaching.

Most good teachers are constantly evaluating student responses, but they do so unsystematically, without any training, and without a common language for mutual support and discussion. What I am suggesting is that the graduate schools take on the responsibility for developing and teaching the methodological tools for classroom research. Every graduate student who plans to be a college teacher anywhere should receive training in classroom research methods, and should have an opportunity to do classroom research and evaluate his or her own effeciveness in teaching the discipline. The profession of teaching would be greatly strengthened, and made more intellectually interesting, if classroom teachers had the research skills to measure the impact of their teaching on student learning.

Every graduate student who plans to be a classroom teacher anywhere should receive training in classroom research methods.

Teaching institutions should take the lead in conducting research related to the improvement of college teaching, because that task is especially appropriate to their mission, but this does not mean that professors in research universities would not conduct classroom research. Indeed, in his annual report this year, Harvard President Derek Bok made suggestions to the Harvard faculty for creating an environment that rewards and encourages better teaching. Among those suggestions are some that would be included in the tools of the Classroom Researcher.

Bok also urged departmental faculties at Harvard to come together to discuss ways of adapting their teaching to the shared purposes of an undergraduate education, and to think together about crafting examinations to reinforce their common aims. Examinations, of course, are one important tool of the classroom researcher, and they are one important piece of the assessment puzzle.

I can think of no action that would do quite as much for the improvement of teaching and learning as to let a thousand classroom laboratories bloom across the nation.

The call of AAHE's National Conference has been to move from rhetoric to action. I can think of no action that would do quite as much for the improvement of teaching and learning as to let a thousand classroom laboratories bloom across the nation. Their purpose would be to discover more effective teaching methods for the classroom researchers themselves, and to establish a foundation of knowledge about college teaching that maximizes learning. That would be taking teaching seriously, and it would move us toward our goal of quality education for all. ■

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